

IN THE CLAIMS:

1. (Amended) A shift conversion unit having a shift reaction section (10) for causing hydrogen-rich reformed gas produced by ~~reaction including~~ partial oxidation of feed gas ~~containing~~ that is composed of hydrocarbon gas, oxidizing gas and steam in a reforming reaction section (6) ~~undergoing no external heat~~ to undergo shift conversion by water gas shift reaction with shift conversion catalyst, characterized in that comprising:

a heat exchanger (15) is provided for exchanging heat of reaction and sensible heat in the shift reaction section (10) with heat of the feed gas in the feed gas passage (3) by heat radiation;

wherein the shift reaction section (10) is arranged to introduce the reformed gas from the reforming reaction section (6) directly into a reformed gas passage (11) and effect the shift reaction while heat-exchanging the reformed gas with the feed gas, and the reformed gas passage (11) of the shift reaction section (10) is formed so that the reformed gas flows from the center side toward the outer peripheral side of the shift reaction section (10).

2. (Original) The shift conversion unit of Claim 1, characterized in that the shift conversion catalyst of the shift reaction section (10) is noble metal catalyst with heat resistance.

3. (Original) The shift conversion unit of Claim 2, characterized in that the shift conversion catalyst of the shift reaction section (10) is catalyst in which Pt, Pt alloy or Ru alloy is used as active metal.

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Amended) The shift conversion unit of Claim 9 1, characterized in that the wherein a distance of portion of between the shift reaction section (10) located downstream in a direction of flow of the reformed gas to and the feed gas passage (3) at a downstream end of the shift reaction section (10), in relation to a flow direction of the reformed gas in the feed gas passage (3), is larger than that a distance between of portion of the shift reaction section (10) and the feed gas passage (3) and an upstream end of the shift reaction section (10) located upstream in the direction of flow of the reformed gas to the feed gas passage (3).

11. (Amended) The shift conversion unit of Claim 8 1, characterized in that wherein the heat exchanger (15) includes a heat transfer fin (16) presented to the feed gas passage (3).

12. (Amended) The shift conversion unit of Claim 11, characterized in that wherein

a plurality of said heat transfer fins (16) are provided along the feed gas passage (3), and

the a pitch of some of the heat transfer fins (16) located upstream in the a direction of flow of the reformed gas in the shift reaction section (10) is smaller than that of some of the heat transfer fins (16) located downstream in the direction of flow of the reformed gas.

13. (Amended) The shift conversion unit of Claim 1, characterized in that A shift conversion unit having a shift reaction section (10) for causing hydrogen-rich reformed gas produced by partial oxidation of feed gas that is composed of hydrocarbon gas, oxidizing gas and steam in a reforming reaction section (6) to undergo shift conversion by water gas shift reaction with a shift conversion catalyst, comprising:

a heat exchanger (23) is provided which includes including a reformed gas side heat transfer fin (21) presented to the reformed gas passage (11) and a feed gas side heat transfer

fin (22) presented to the feed gas passage (3) and exchanges heat of reaction and sensible heat in the shift reaction section (10) with heat of the feed gas in the feed gas passage (3), and

wherein the shift reaction section (10) is arranged to introduce the reformed gas from the reforming reaction section (6) directly into a reformed gas passage (11) and effect the shift reaction while heat-exchanging the reformed gas with the feed gas, and

the shift conversion catalyst of the shift reaction section (10) is applied to or supported on at least the reformed gas side heat transfer fin (21).

14. (Cancelled)
15. (Cancelled)
16. (Cancelled)
17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)